WHAT IS CLAIMED IS:

1. A method of manufacturing a semiconductor device comprising the steps of:

adding a metallic element to a first semiconductor film having an amorphous structure;

crystallizing the first semiconductor film to form a first semiconductor film having a crystalline structure;

forming a barrier layer on a surface of the first semiconductor film having a crystalline structure;

forming a second semiconductor film on the barrier layer;

forming a third semiconductor film comprising an inert gas element on the second semiconductor film;

gettering the metallic element into the third semiconductor film to remove or reduce the amount of the metallic element within the first semiconductor film having a crystalline structure; and

removing the second semiconductor film and the third semiconductor film.

2. A method of manufacturing a semiconductor device according to claim 1, wherein the step of forming of the third semiconductor film comprises steps of forming a semiconductor film and adding an inert gas element to the semiconductor film.

3. A method of manufacturing a semiconductor device according to claim 1, wherein the step of forming of the third semiconductor film comprises a step of forming a semiconductor film comprising an inert gas element by using plasma CVD or reduced pressure thermal CVD.

4. A method of manufacturing a semiconductor device according to claim 1, wherein the step of forming of the third semiconductor film comprises a step of forming a third semiconductor film comprising an inert gas element by using sputtering.

5. A method of manufacturing a semiconductor device according to claim 3, comprising the step of forming the third semiconductor film comprising an inert gas element and further adding an inert gas element to the third semiconductor film.

6. A method of manufacturing a semiconductor device according to claim 4, comprising the step of forming the third semiconductor film comprising an inert gas element and further adding an inert gas element to the third semiconductor film.

7. A method of manufacturing a semiconductor device according to claim 2, comprising the step of adding one element or a plurality of elements chosen from the group consisting of O, O_2, P, H, and H_2 in addition to the inert gas element.

8. A method of manufacturing a semiconductor device according to claim 5, comprising the step of adding one element or a plurality of elements chosen from the group consisting of O, O_2, P, H, and H_2 in addition to the inert gas element.

9. A method of manufacturing a semiconductor device according to claim 1, wherein the third semiconductor film is a semiconductor film having an amorphous structure or a crystalline structure.

10. A method of manufacturing a semiconductor device comprising the steps of:

adding a metallic element to a first semiconductor film having an amorphous structure;

crystallizing the first semiconductor film to form a first semiconductor film having a crystalline structure;

forming a barrier layer on a surface of the first semiconductor film having a crystalline structure;

forming a second semiconductor film on the barrier layer;

adding an inert gas element to an upper layer of the second semiconductor film;

gettering the metallic element into the upper layer of the second semiconductor film to remove or reduce the amount of the metallic element within the first semiconductor film having a crystalline structure; and

removing the second semiconductor film.

11. A method of manufacturing a semiconductor device according to claim 10, comprising the step of adding one element or a plurality of elements chosen from the group consisting of O, O_2, P, H, and H_2 in addition to the inert gas element.

12. A method of manufacturing a semiconductor device according to claim 1, wherein the second semiconductor film is a semiconductor film having an amorphous structure or a crystalline structure.

13. A method of manufacturing a semiconductor device according to claim 10,

wherein the second semiconductor film is a semiconductor film having an amorphous structure or a crystalline structure.

14. A method of manufacturing a semiconductor device according to claim 1, wherein the metallic element is one element or a plurality of elements chosen from the group consisting of Fe, Ni, Co, Ru, Rh, Pd, Os, Ir, Pt, Cu, and Au.

15. A method of manufacturing a semiconductor device according to claim 10, wherein the metallic element is one element or a plurality of elements chosen from the group consisting of Fe, Ni, Co, Ru, Rh, Pd, Os, Ir, Pt, Cu, and Au.

16. A method of manufacturing a semiconductor device according to claim 1, wherein the step of crystallizing the first semiconductor film is a heat treatment process.

17. A method of manufacturing a semiconductor device according to claim 10, wherein the step of crystallizing the first semiconductor film is a heat treatment process.

18. A method of manufacturing a semiconductor device according to claim 1, wherein the step of crystallizing the first semiconductor film is a process of irradiating strong light to the semiconductor film having an amorphous structure.

19. A method of manufacturing a semiconductor device according to claim 10, wherein the step of crystallizing the first semiconductor film is a process of irradiating strong light to the semiconductor film having an amorphous structure.

20. A method of manufacturing a semiconductor device according to claim 1, wherein the step of crystallizing the first semiconductor film is a heat treatment process and a process of irradiating strong light to the semiconductor film having an amorphous structure.

21. A method of manufacturing a semiconductor device according to claim 10, wherein the step of crystallizing the first semiconductor film is a heat treatment process and a process of irradiating strong light to the semiconductor film having an amorphous structure.

22. A method of manufacturing a semiconductor device according to claim 1, wherein the step of forming the barrier layer is a step of oxidizing a surface of the semiconductor film having a crystalline structure by using a solution containing ozone.

23. A method of manufacturing a semiconductor device according to claim 10, wherein the step of forming the barrier layer is a step of oxidizing a surface of the semiconductor film having a crystalline structure by using a solution containing ozone.

24. A method of manufacturing a semiconductor device according to claim 1, wherein the step of forming the barrier layer is a step of oxidizing a surface of the semiconductor film having a crystalline structure by irradiating ultraviolet light.

25. A method of manufacturing a semiconductor device according to claim 10, wherein the step of forming the barrier layer is a step of oxidizing a surface of the semiconductor film having a crystalline structure by irradiating ultraviolet light.

26. A method of manufacturing a semiconductor device according to claim 1, wherein the step of gettering is a heat treatment process.

27. A method of manufacturing a semiconductor device according to claim 10, wherein the step of gettering is a heat treatment process.

28. A method of manufacturing a semiconductor device according to claim 1, wherein the step of gettering is a process of irradiating strong light to the semiconductor film.

29. A method of manufacturing a semiconductor device according to claim 10, wherein the step of gettering is a process of irradiating strong light to the semiconductor film.

30. A method of manufacturing a semiconductor device according to claim 1, wherein the step of gettering is a heat treatment process and a process of irradiating strong light to the semiconductor film.

31. A method of manufacturing a semiconductor device according to claim 10, wherein the step of gettering is a heat treatment process and a process of irradiating strong light to the semiconductor film.

32. A method of manufacturing a semiconductor device according to claim 18, wherein the strong light is light emitted from a halogen lamp, a metal halide lamp, a xenon arc lamp, a carbon arc lamp, a high pressure sodium lamp, or a high pressure mercury lamp.

33. A method of manufacturing a semiconductor device according to claim 19, wherein the strong light is light emitted from a halogen lamp, a metal halide lamp, a xenon arc lamp, a carbon arc lamp, a high pressure sodium lamp, or a high pressure mercury lamp.

34. A method of manufacturing a semiconductor device according to claim 20, wherein the strong light is light emitted from a halogen lamp, a metal halide lamp, a xenon arc lamp, a carbon arc lamp, a high pressure sodium lamp, or a high pressure mercury lamp.

35. A method of manufacturing a semiconductor device according to claim 21, wherein the strong light is light emitted from a halogen lamp, a metal halide lamp, a xenon arc lamp, a carbon arc lamp, a high pressure sodium lamp, or a high pressure mercury lamp.

36. A method of manufacturing a semiconductor device according to claim 28, wherein the strong light is light emitted from a halogen lamp, a metal halide lamp, a xenon arc lamp, a carbon arc lamp, a high pressure sodium lamp, or a high pressure mercury lamp.

37. A method of manufacturing a semiconductor device according to claim 29, wherein the strong light is light emitted from a halogen lamp, a metal halide lamp, a xenon arc lamp, a carbon arc lamp, a high pressure sodium lamp, or a high pressure mercury lamp.

38. A method of manufacturing a semiconductor device according to claim 30, wherein the strong light is light emitted from a halogen lamp, a metal halide lamp, a xenon arc lamp, a carbon arc lamp, a high pressure sodium lamp, or a high pressure mercury lamp.

39. A method of manufacturing a semiconductor device according to claim 31, wherein the strong light is light emitted from a halogen lamp, a metal halide lamp, a xenon arc lamp, a carbon arc lamp, a high pressure sodium lamp, or a high pressure mercury lamp.

40. A method of manufacturing a semiconductor device according to claim 1, wherein the inert gas element is one element or a plurality of elements chosen from the group consisting of He, Ne, Ar, Kr, and Xe.

41. A method of manufacturing a semiconductor device according to claim 10, wherein the inert gas element is one element or a plurality of elements chosen from the group consisting of He, Ne, Ar, Kr, and Xe.

42. A method of manufacturing a semiconductor device according to claim 1, wherein the third semiconductor film further comprises one element or a plurality of element selected form the group of O, O_2, P, H, H_2.

43. A method of manufacturing a semiconductor device according to claim 10, wherein the third semiconductor film further comprises one element or a plurality of element selected form the group of O, O_2, P, H, H_2.

44. A method of manufacturing a semiconductor device according to claim 1, wherein the third semiconductor film comprises an inert gas element at a concentration of $1x10^{19}$ to $1x10^{22}$ /cm^3.

45. A method of manufacturing a semiconductor device according to claim 10, wherein the second semiconductor film is added an inert gas element at a concentration of $1x10^{19}$ to $1x10^{22}$ /cm^3.

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